

NOTES FOR GEORGIA TECH PRESIDENT G. WAYNE CLOUGH
Harvard Business School Club Breakfast, March 19, 2003
“The Role of Technology and the Technological University in the 21st Century”

- In broadest sense, technology is defined as humans modifying the natural world to better serve our needs.
- European Engineer Juergen Mittelstrass’ “Leonardo World”
 - The course of human history has been a progression from a little technology in a largely natural world to living in a vast labyrinth of technology in an ever-smaller natural world.
 - Have used science and technology to take the natural world into our own hands and make it an artifact.
 - Problems are increasing likely to be the consequences of our own invention rather than the forces of nature.
- World population passed 6 billion in 1999, UN projects 10 billion later this century before it tapers off. Straining the closed and finite ecosystem of Earth:
 - Water shortages
 - Air pollution significant enough to cause lung damage and curtail agricultural growth
 - Global warming, climate change
 - Health considerations – more diseases like AIDS transferring from animals to humans as natural habitat is destroyed; aging population
- Technology now the deciding factor between the haves and have-nots. Technology-driven global economy promotes openness and democratic behavior; a threat to closed societies who are lashing out.
- While true that technology helped create many of the problems we face, also true that technology holds the solutions.
- Technological universities faced with unique and significant opportunities to shape the future. 3 facets to their role:
 - Educating the technological leaders of the future
 - Conducting the research that will solve problems we face and allow prosperity to be shared broadly
 - Influencing public policy to a greater extent
- Educating the technological leaders of the future:
 - More than teaching academic disciplines; grads must also understand the potential impact on society of the technology they create and its potential dangers.

- Leadership skills – understanding that leadership is not about power but about service; have vision, personal integrity, ability to work on diverse teams, communication and listening skills.
- Engage our undergrads in serious, productive research – shape questing and inquisitive minds, creative thinking, comfort level with open-ended questions.
- Comfortable in global context.
- Conducting research:
 - Preserving the environment is really preserving ourselves; if we allow the climate to become unhealthy for human beings, homo sapiens will join other species that have become extinct.
 - Research and innovation drive the economy of the 21st century; prosperity of our nation and the world depends on innovation.
 - Personal participation in PCAST and its role in helping shape the national research agenda.
- Influencing public policy
 - PCAST continued
 - Elected officials and many of their staffs are really technologically illiterate, yet they are called upon to make many decisions about technology that have far-reaching consequences. Broadband “last mile,” for example, is as much a policy problem as a technology problem. Technologically minded people (engineers, e.g.) are needed to help public officials understand the implications and ramifications of their decisions. (Personal leadership of natural gas, telecom, clean water task forces in Georgia)
 - Public policy decision-making would also benefit from the problem-solving skills of engineers. Traditional politicians: predetermined answer based on partisan ideology, then try to construe the facts and data to make a case for that answer. Engineers: begin by analyzing and understanding the problem, then work through the data and details in an objective, orderly manner to construct the best possible solution.